WHAT IS CLAIMED IS:

1. A method for manufacturing a cathode, comprising the steps of:

A) a process for applying onto a substrate a fluid mixture comprising polymers or precursors to said polymers, fine particles of electroconductive material or organic metal compound, and solvent;

B) a process for removing said solvent by heating said fluid mixture applied on said substrate, thereby obtaining an electroconductive organic film comprising said polymers and said electroconductive material; and

C) a process for forming a gap at a portion of said electroconductive organic film by applying an electrical current thereto.

2. A method for manufacturing a cathode according to Claim 1, wherein said process for applying said fluid mixture is performed by the ink-jet method.

3. A method for manufacturing a cathode according to Claim 2, wherein said ink-jet method involves applying heat to said fluid mixture to the point of boiling so as to generate bubbles, and using the pressure of said bubbles to eject droplets of said fluid mixture.

4. A method for manufacturing a cathode according to Claim 2, wherein said ink-jet method involves applying electric signals to piezoelectric elements so as to cause deformation thereof, thereby ejecting droplets of said fluid mixture.

5. A method for manufacturing a cathode according to Claim 1, wherein said polymers comprise at least one selected from the following group: all-aromatic polymers, and polyacryllo nitryl.

6. A method for manufacturing a cathode according to Claim 5, wherein said all-aromatic polymers comprise polyimide, polybenzoimidazole, and polyamideimide.

7. A method for manufacturing a cathode according to Claim 1, wherein said electroconductive material comprises at least one selected from the following group: Pd, Ru, Ag, Cu, Tb, Cd, Fe, Pb, Zn, PdO, $SnO_2$, $In_2O_3$, PbO, $Sb_2O_3$, $HfB_2$, $ZrB_2$, $LaB_6$,$CeB_6$, $YB_4$, $GdB_2$, TiC, ZrC, HfC, TaC, SiC, WC, TiN, ZrN, HfN, polyacetylene, poly-p-phenylene, polyphenylene sulfide, polypyrrole, Si, Ge, carbon, and graphite.

8. A method for manufacturing a cathode according to Claim 1, wherein said electroconductive material comprises at least one selected from the following group: metals, oxides, borides, carbides, nitrides, electroconductive high polymers, and semiconductors.

9. A method for manufacturing a cathode, comprising the steps of:

A) a step for forming on a substrate an electroconductive organic film comprising a mixture of:

at least one organic material selected from the following group: all-aromatic polymers, and polyacryllo nitrile; and

an electroconductive material; and

B) a step for forming a gap at a portion of said electroconductive organic film by applying an electrical current thereto.

10. A method for manufacturing a cathode according to Claim 9, wherein said all-aromatic polymers comprise at least one organic material selected from the following group: polyimide, polybenzoimidazole, and polyamideimide.

11. A method for manufacturing a cathode, comprising the steps of:

A) a step for forming on a substrate an electroconductive organic film comprising:

at least one organic material selected from the following group: all-aromatic polymers, and polyacryllo nitrile; and

an electroconductive material; and

B) a step for forming a gap at a portion of said electroconductive organic film by applying an electrical current thereto.

12. A method for manufacturing a cathode according to Claim 11, wherein said all-aromatic polymers comprise at least one organic material selected from the following group: polyimide, polybenzoimidazole, and polyamideimide.

13. A method for manufacturing a cathode, comprising the steps of:

A) a step for forming an electroconductive organic film on a substrate; and

B) a step for forming a gap at a portion of said electroconductive organic film by applying an electrical current thereto.

14. A method for manufacturing an electron source comprising an array of a plurality of cathodes, wherein said

cathodes are manufactured according to any of the Claims 1 through 13.

15. A method for manufacturing said electron source according to Claim 14, comprising:

A) a step for forming an array of a plurality of pairs of electrodes on a substrate, using offset printing;

B) a step for forming a plurality of X-directional wires coming into common contact with one of said pair of electrodes, on said substrate using screen printing;

C) a step for forming a plurality of Y-directional wires coming into common contact with the other of said pair of electrodes, on said substrate using screen printing;

wherein said Y-directional wires are formed over said X-directional wires so as to be electrically insulated therefrom by an insulating layer formed using screen printing;

and wherein said Y-direction and said X-direction are generally perpendicular;

D) a step for positioning said electroconductive organic film so as to connect between each of said pairs of electrodes, using the ink-jet method; and

E) a step for forming a gap at a portion of said electroconductive organic film by applying an electrical current thereto, via said X-directional wires and said Y-

directional wires.

16. A method for manufacturing an image forming apparatus comprising an electron source comprising an array of a plurality of cathodes and image forming members positioned facing said electron source;

wherein said electron source is manufactured according to Claim 14 or Claim 15.